

REMARKS

The present application was filed on November 26, 2003 with claims 1-29. Claim 10 was canceled in a previous amendment. Claims 1-9 and 11-29 remain pending. Claims 1, 8, 11, 15, 22, 25 and 29 are the pending independent claims.

Claims 1-9 and 11-29 are rejected under 35 U.S.C. §101 as directed to non-statutory subject matter.

Claims 1-7, 9, 14-21, 23, 24 and 26-29 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Application Publication No. 2004/0061701 (hereinafter "Arquie").

Claims 8, 11, 22 and 25 are indicated as having allowable subject matter.

Applicants have amended claim 12 solely to clarify the dependency thereof. Specifically, claim 12 has been amended to depend from independent claim 11, rather than canceled claim 10. This amendment is believed to place the claims in better condition for appeal and is not believed to require further search and consideration on the part of the Examiner. Accordingly, Applicants respectfully request entry of this amendment under 37 CFR 1.116(b)(2).

Applicants respectfully note that claims 12 and 13 depend from claim 11 and that claims 26 and 27 depend from claim 25. Applicants respectfully submit that, because claims 8 and 25 are indicated as containing allowable subject matter, claims 12, 13, 26 and 27 should also be indicated as containing allowable subject matter at least by virtue of their respective dependencies from claims 8 and 25. See, e.g., *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). (holding that if an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious)

With regard to the §101 rejection of claims 15, 22, and 25, the Examiner claims that "the statutory category of the claims is unknown and is therefore drawn to non-statutory subject matter." Applicants initially note that in *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 149 F.3d 1368, 1375, 47 USPQ2d 1596, 1602 (Fed. Cir. 1998), the Federal Circuit explained:

The question of whether a claim encompasses statutory subject matter should not focus on which of the four categories of subject matter a claim is directed to -- process, machine, manufacture, or composition of matter -- [provided the subject

matter falls into at least one category of statutory subject matter] but rather on the essential characteristics of the subject matter, in particular, its practical utility.

Moreover, Applicants respectfully note that each of these claims is directed to an apparatus for designing a line system, and specifies that the apparatus comprises a memory and at least one processor coupled to the memory. As such, it is clear that these claims are apparatus claims and hence fall within the statutory category of a “machine,” as recited in §101.

Further support may be found in the portion of MPEP 2106.01 quoted by the Examiner, which states that “[w]hen a computer program is recited in conjunction with a physical structure, such as a computer memory, USPTO personnel should treat the claim as a product claim.”

Applicants further note that MPEP 2106 specifies that

a claimed invention may be a combination of devices that appear to be directed to a machine and one or more steps of the functions performed by the machine. Such instances of mixed attributes, although potentially confusing as to which category of patentable subject matter the claim belongs, does not affect the analysis to be performed by USPTO personnel. Note that an apparatus claim with process steps is not classified as a “hybrid” claim; instead, it is simply an apparatus claim including functional limitations. See, e.g., *R.A.C.C. Indus. v. Stun-Tech, Inc.*, 178 F.3d 1309 (Fed. Cir. 1998) (unpublished).

The Examiner further contends that “being ‘configured to’ neither stores, nor executes the software instructions but merely recites intended use (functional descriptive subject matter neither being executed by a processor nor stored on a memory), which is not given patentable weight. See MPEP 2111.04.”

Applicants respectfully submit that one having skill in the art would clearly understand that a processor performs operations by executing stored instructions. Accordingly, it is inherent that a “processor configured to” perform specified operations does so by executing stored instructions. See also the specification at, for example, page 17, lines 27-31.

With regard to the rejection of claims 1, 8 and 11, Applicants initially note that, as described in MPEP 2106, the purpose of the “concrete, tangible and useful” requirement is to limit patent protection to inventions that possess a certain level of “real world” value, as opposed to subject

matter that represents nothing more than an idea or concept, or is simply a starting point for future investigation or research. See, e.g., *Brenner v. Manson*, 383 U.S. 519, 528-36, 148 USPQ 689, 693-96 (1966); *In re Fisher*, 421 F.3d 1365, 76 USPQ2d 1225 (Fed. Cir. 2005); *In re Ziegler*, 992 F.2d 1197, 1200-03, 26 USPQ2d 1600, 1603-06 (Fed. Cir. 1993)).

Applicants further note that the Federal Circuit has repeatedly held that “transformation of . . . signals . . . by a machine through a series of mathematical calculations constituted a practical application of an abstract idea (a mathematical algorithm, formula, or calculation), because it corresponded to a useful, concrete or tangible thing.” See, e.g., *State Street Bank & Trust Co. v. Signature Financial Group*, 149 F.3d 1368, 1373, 47 USPQ2d 1596, 1601 (Fed. Cir. 1998) citing *Arrhythmia Research Technology Inc. v. Corazonix Corp.*

In the present case, “specifying a line system design,” as recited in each of these claims, produces a “useful, concrete and tangible result” because the line system design “correspond[s] to a useful, concrete or tangible thing.” For example, in an illustrative embodiment, the line system design may correspond to the optical line system shown in FIG. 1 and described in the specification at, for example, page 1, lines 16-23.

The Examiner argues that the “claimed representation is not limited to a tangible, concrete and useful final result. It is unclear where the ‘representation’ takes place or if it even result or merely an internal representation which is just an abstract mathematical calculation.” Applicants initially note that, as described in MPEP 2106, “the focus is not on whether the steps taken to achieve a particular result are useful, tangible, and concrete, but rather on whether the final result achieved by the claimed invention is ‘useful, tangible, and concrete.’” Here, the Examiner improperly focuses on the step of “representing the line system design as a graph,” rather than the concrete, useful and tangible result generated by the step of “specifying a line system design.”

The Examiner also asserts that “the claimed steps are merely software processes.” Applicants respectfully submit that MPEP 2106.01 specifies that a “claim remains statutory irrespective of the fact that a computer program is included in the claim. . . . when a computer program is used in a computerized process where the computer executes the instructions set forth in the computer

program.” Applicants respectfully note that each of the method claims at issue specifies that the recited steps are performed by a computer.

The Examiner further contends that “the statutory category of the claims is unknown.” Applicants respectfully submit that each of claims 1, 8 and 11 are directed to “a method of designing a line system.” As such, it is clear that these claims are method claims and hence fall within the statutory category of a “process,” as recited in §101.

Regarding the §101 rejection of claim 29, Applicants respectfully submit that “an article of manufacture for designing a line system, comprising a machine readable storage medium containing one or more programs which when executed implement” steps which produce a concrete, useful, and tangible result constitute a proper claim of statutory subject matter. See, e.g., *In re Beauregard*, 53 F.3d 1583; 35 USPQ2d 1383 (Fed. Cir. 1995); *In re Lowry*, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994).

The Examiner indicates that certain claim limitations have not been given patentable weight. Applicants respectfully submit that the Examiner’s failure to consider these limitations is improper and renders the present rejection of claim 1 facially deficient. the product of an improper piecemeal examination of the sort specifically prohibited. See also *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970) (“All words in a claim must be considered in judging the patentability of that claim against the prior art.”)

For example, the Examiner contends that the “wherein clauses reciting the measurement of big-oh notation are analogous to having a claim with a wherein clause reciting that something is measurable with inches, light-years, etc. Accordingly, unless the actual structure of function that requires the measurement is recited, the wherein clauses are not given patentable weight.”

Applicants respectfully submit that there are no claims which contain “wherein clauses reciting the measurement of big-oh notation.” The Examiner is apparently referring to the limitation of claims 8 and 22 directed to “computing the graph coloring operation to an $O(\sqrt{s})$ - approximation.” Applicants respectfully submit that this limitation is neither a wherein clause nor

recites a measurement of big-oh notation. Moreover, Applicants respectfully note that claims 8 and 22 are indicating as reciting allowable subject matter.

The Examiner argues that the limitation of claim 1 “wherein *the one or more demands comprise one or more bandwidth requests*” fails to limit the claim. Applicants respectfully submit that the limitation at issue specifies that the one or more demands must include one or more bandwidth requests, and hence limits the structure of the one or more demands.

The Examiner further characterizes the limitations of claim 1 which recite (emphasis in original) “obtaining a set of one or more demands *for use in computing the line system design*,” and “representing the line system design as a graph in accordance with a graph coloring operation wherein . . . the one or more demands are routed *so as to attempt to achieve a minimum total design cost*,” as being drawn to intended use and hence not given patentable weight.

In making this assertion, the Examiner relies upon *Minton v. Nat’l Ass’n of Securities Dealers, Inc.*, 336 F.3d 1373, 1381, 67 USPQ2d 1614, 1620 (Fed. Cir. 2003), as cited in MPEP 2111.04. However, it should be noted that the MPEP section in question reads, in relevant part:

The determination of whether each of these clauses [e.g., ‘adapted to,’ ‘adapted for,’ ‘wherein,’ and ‘whereby’ clauses] is a limitation in a claim depends on the specific facts of the case.” In *Hoffer v. Microsoft Corp.*, 405 F.3d 1326, 1329, 74 USPQ2d 1481, 1483 (Fed. Cir. 2005), the court acknowledged (quoting *Minton*, 336 F.3d at 1381, 67 USPQ2d at 1620) that a “whereby clause in a method claim is not given weight when it simply expresses the intended result of a process step positively recited,” but then held that when a whereby “clause states a condition that is material to patentability, it cannot be ignored in order to change the substance of the invention.”

Indeed, Applicants respectfully submit that the claim limitations at issue is analogous to that upheld in *Hoffer*, in which the whereby clause described “a network of users at multiple remote user terminals who are ‘collectively able to concurrently engage in interactive data messaging.’ This capability is more than the intended result of a process step; it is part of the process itself.” 405 F.3d at 1329, 74 USPQ2d at 1483. Thus, these limitations should be afforded patentable weight, as they recite parts of the process itself rather than simple expressions of intended results of process steps.

Moreover, these clauses state conditions that are material to patentability. Applicants note that a given claim is anticipated “only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Moreover, the cited reference must show the “identical invention . . . in as complete detail as is contained in the . . . claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). See generally MPEP 2131.

In this case, Applicants assert that Arquie clearly fails to teach or even suggest each and every limitation of the claims, including those limitations which the Examiner fails to give patentable weight. For example, Arquie does not disclose the limitation recited in claim 1 directed to representing a line system design as a graph in accordance with a graph coloring operation wherein colors represent bandwidths such that bandwidths are assigned and the one or more demands are routed so as to attempt to achieve a minimum total design cost.

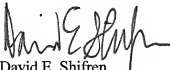
The Office Action cites paragraph [0013] of Arquie for the purpose of suggesting that “adding color [] such that particular performance ranges are essentially color-coded” teaches or suggests the claim limitation. However, this portion of Arquie completely fails to teach or suggest the claim limitation. That is, Arquie mentions nothing about colors representing bandwidths such that bandwidths are assigned and the one or more demands are routed so as to attempt to achieve a minimum total design cost.

Independent claims 8, 11, 15, 22, and 25 are believed to be statutory and patentable for at least the reasons similar to those recited above with reference to claim 1.

Dependent claims 2-7, 9, 12-14, 16-21, 23, 24 and 26-29 are also believed patentable at least by virtue of their respective dependencies from their base claims.

In view of the above, Applicants believe that claims 1-9 and 11-29 are in condition for allowance, and respectfully request withdrawal of the present rejections.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "David E. Shifren", written over the printed name.

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